In the Claims:

1-36. (Canceled)

37. (Original) A nucleotide analogue which comprises:

(a) a base selected from the group consisting of adenine or an analogue of adenine, cytosine or an analogue of cytosine, guanine or an analogue of guanine, thymine or an analogue of thymine, and uracil or an analogue of uracil;

(b) a unique label attached through a cleavable linker to the base or to an analogue of the base;

(c) a deoxyribose; and

(d) a cleavable chemical group to cap an -OH group at a 3'-position of the deoxyribose.

38. (Original) The nucleotide analogue of claim 37, wherein the cleavable chemical group that caps the -OH group at the 3'-position of the deoxyribose is $-CH_2OCH_3$ or $-CH_2CH=CH_2$.

39. (Original) The nucleotide analogue of claim 37, wherein the unique label is a fluorescent moiety or a fluorescent semiconductor crystal.

40. (Original) The nucleotide analogue of claim 39, wherein the fluorescent moiety is selected from the group consisting of 5-carboxyfluorescein, 6-carboxyrhodamine-6G, N,N,N',N'-tetramethyl-6-carboxyrhodamine, and 6-carboxy-X-rhodamine.

41. (Original) The nucleotide analogue of claim 37, wherein the unique label is a fluorescence energy transfer tag which comprises an energy transfer donor and an energy transfer acceptor.

42. (Original) The nucleotide analogue of claim 41, wherein the energy transfer donor is 5-carboxyfluorescein or cyanine, and wherein the energy transfer acceptor is selected from the group consisting of dichlorocarboxyfluorescein, dichloro-6-carboxyrhodamine-6G, dichloro-N,N,N',N'-tetramethyl-6-carboxyrhodamine, and dichloro-6-carboxy-X-rhodamine.

43. (Original) The nucleotide analogue of claim 37, wherein the unique label is a mass tag that can be detected and differentiated by a mass spectrometer.

44. (Original) The nucleotide analogue of claim 43, wherein the mass tag is selected from the group consisting of a 2-nitro-α-methyl-benzyl group, a 2-nitro-α-methyl-3-fluorobenzyl group, a 2-nitro-α-methyl-3,4-difluorobenzyl group, and a 2-nitro-α-methyl-3,4-dimethoxybenzyl group.

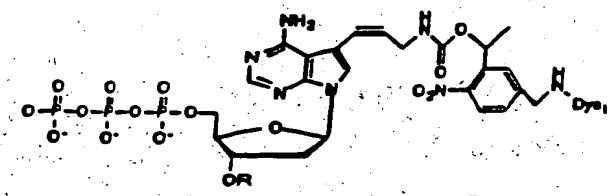
45. (Original) The nucleotide analogue of claim 37, wherein the unique label is attached through a cleavable linker to a 5-position of cytosine or thymine or to a 7-position of deaza-adenine or deaza-guanine.

46. (Original) The nucleotide analogue of claim 37, wherein the linker between the unique label and the nucleotide analogue is cleavable by a means selected from the group consisting of one or more of a physical means, a chemical means, a physical chemical means, heat, and light.

47. (Original) The nucleotide analogue of claim 46, wherein the cleavable linker is a photocleavable linker which comprises a 2-nitrobenzyl moiety.

48. (Original) The nucleotide analogue of claim 37, wherein the cleavable chemical group used to cap the -OH group at the 3'-position of the deoxyribose is cleavable by a means selected from the group consisting of one or more of a physical means, a chemical means, a physical chemical means, heat, and light.

49. (Original) The nucleotide analogue of claim 37, wherein the nucleotide analogue is selected from the group consisting of: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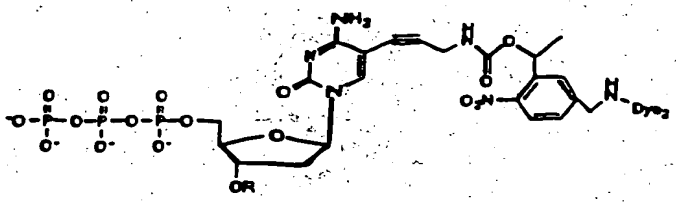
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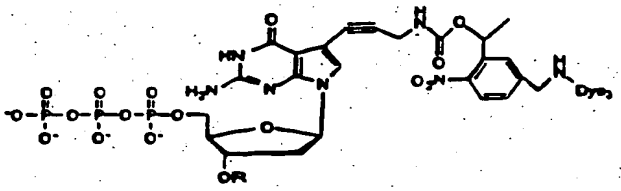
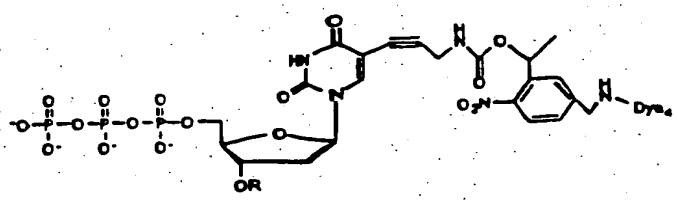
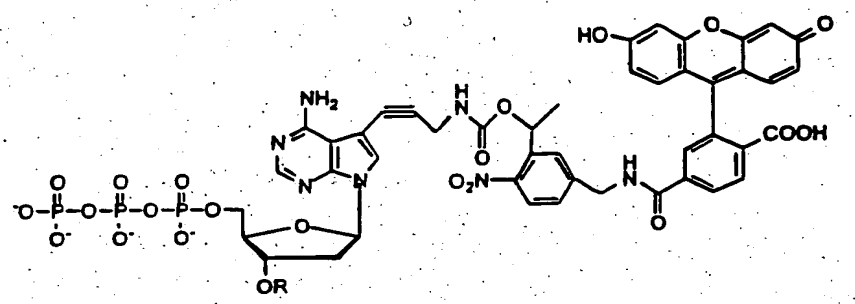

, and


;

wherein Dye1, Dye2, Dye3, and Dye4 are four different dye

labels; and wherein R is a cleavable chemical group used to cap the -OH group at the 3'-position of the deoxyribose.

50. (Original) The nucleotide analogue of claim 49, wherein the nucleotide analogue is selected from the group consisting of:



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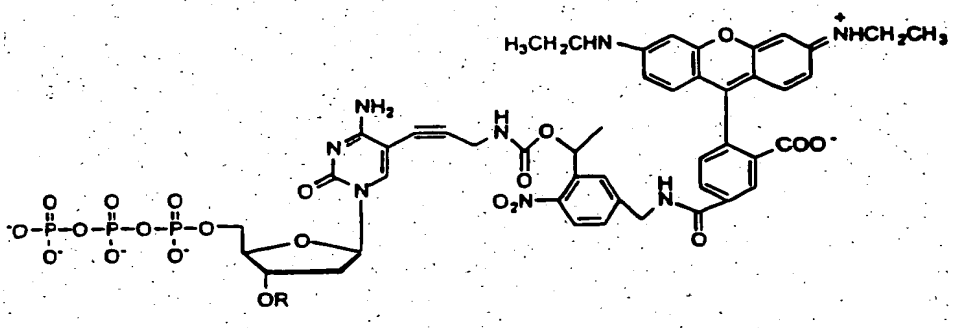

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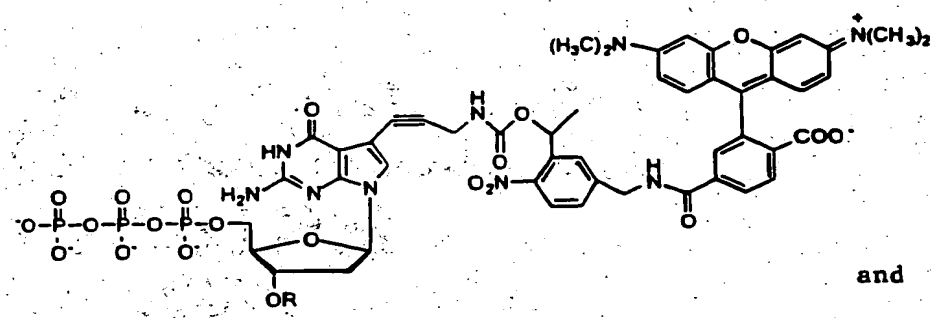
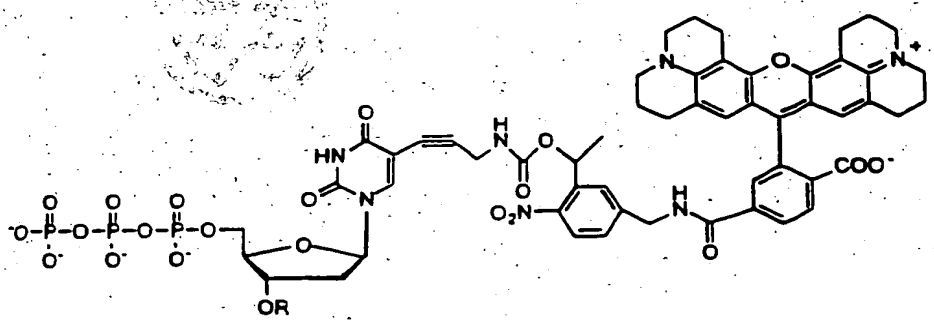


,

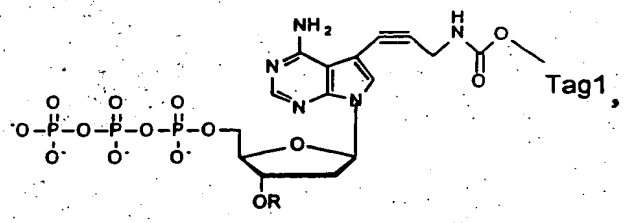
and

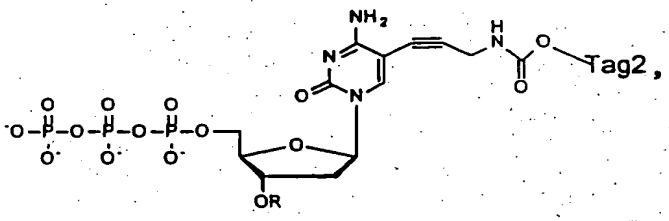


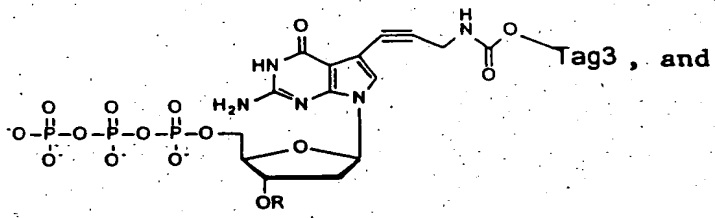
;

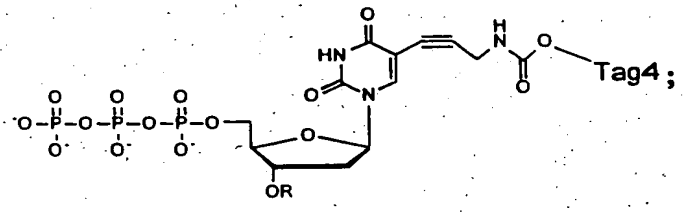
wherein R is $-CH_2OCH_3$ or $-CH_2CH=CH_2$.

51. (Original) The nucleotide analogue of claim 37, wherein the nucleotide analogue is selected from the group consisting of:





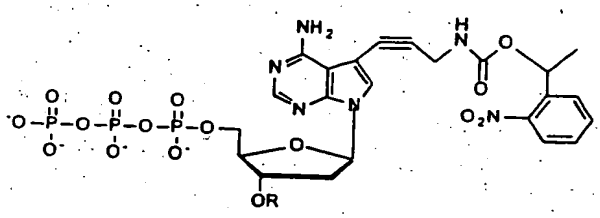




wherein Tag1, Tag2, Tag3, and Tag4 are four different mass tag labels; and wherein R is a cleavable chemical group used to cap the -OH group at the 3'-position of the deoxyribose.

52. (Original) The nucleotide analogue of claim 51, wherein the

nucleotide analogue is selected from the group consisting of:



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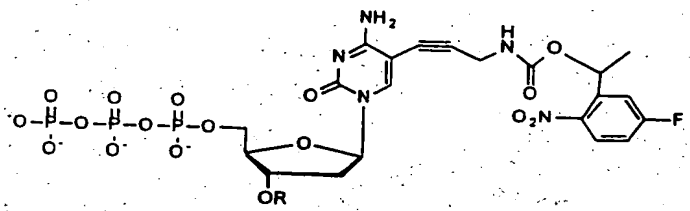

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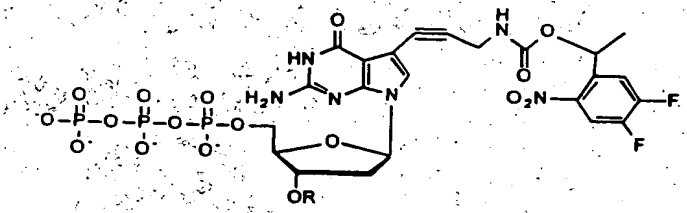
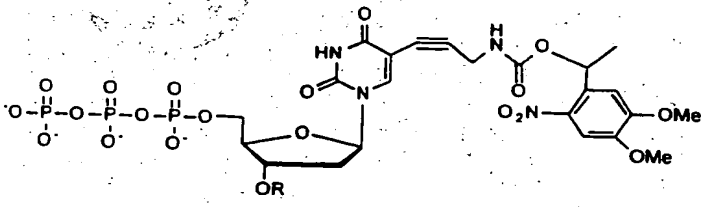


, and



;

wherein R is $-CH_2OCH_3$ or $-CH_2CH=CH_2$.

53-60. (Canceled)